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(54) VOICE/DATA TRANSMITTER

(57)Abstract:

PURPOSE: To obtain the voice/data transmitter in which voice and data are sent through a same channel and the channel efficiency is improved.

CONSTITUTION: An output circuit 1 sending a voice signal and a data signal to a transmission line 3 is provided with an output voice detection means 17 detecting the voice signal and an output side data output switch 16 stopping the transmission of the data signal when the output side voice detection means 17 detects the voice signal. Furthermore, an input circuit 2 receiving the voice signal and the data signal to be sent is provided with an input side voice detection means 26 detecting the voice signal and an input side data output switch 25 stopping the reception of the data signal when the input side voice detection means 26 detects the voice signal.
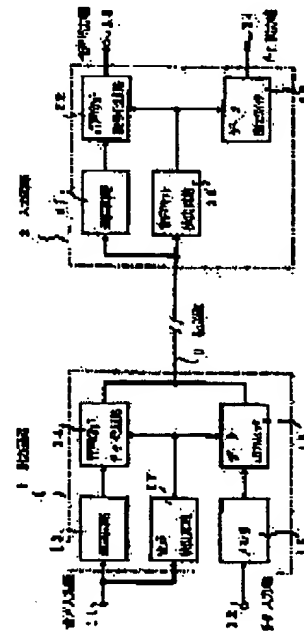
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* NOTICES *

CLAIMS

[Claim(s)]
[Claim 1] It connects through a transmission line. The output circuit which can send out a sound signal and a data signal, An output side voice detection means to have the input circuit which can receive the transmitted sound signal and a data signal, and to detect a sound signal in said output circuit, An input sidetone voice detection means to detect the sound signal which was equipped with the output side data output switch made to stop sending out of a data signal when this output side voice detection means detected a sound signal, and has been transmitted to said input circuit, Voice data transmission equipment characterized by having the input-side data output switch made to stop reception of a data signal when this input sidetone voice detection means detects a sound signal.

[Claim 2] The delay circuit which delays the sound signal with which the output circuit was inputted into the voice input edge, The packetized voice data-ized circuit which packetized-voice-data--ization-processes the delayed sound signal, and is sent out to a transmission line, The voice detector which detects said inputted sound signal, and the memory which once memorizes the data signal inputted into the data input edge, It has the data output switch which is beginning to read the data signal memorized by this memory one by one, and is sent out to a transmission line. Said data output switch is constituted so that the actuation may be suspended, when said voice detector detects a sound signal. An input circuit The delay circuit which delays both the sound signal transmitted from the transmission line, and a data signal, The packetized voice decryption circuit which decrypts the delayed packetized voice of a sound signal and is outputted to a voice output edge, It has the packetized voice data detector which detects a packetized voice, and the data output switch which outputs a data signal to a data output edge. Said data output switch is voice data transmission equipment of claim 1 as for which is constituted and the actuation becomes so that may be suspended, when said packetized voice data detector detects a packetized voice.

[Claim 3] Voice data transmission equipment of claim 2 with which a data input edge, memory, and two or more sets of data output switches are formed, and each data output switch operates sequential.

[Claim 4] Claim 1 thru/or 3 voice data transmission equipment which is the sound signal with which the sound signal inputted into a voice input edge was multiplexed.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the voice data transmission equipment which performed data transmission especially in the voice transmission line using the opening of the circuit at the time of silent, and raised circuit efficiency about the voice data transmission system which enabled transmission of voice and data by the one transmission line.
[0002]
[Description of the Prior Art] In order to aim at a deployment of the voice transmission line, the digital-speech-interpolation method (DSI method) which transmitted only the part in which voice exists is proposed. For example, the opening of the circuit at the time of silent is canceled by transmitting only the pulse signal judged that there is voice in two or more PCM channels to JP,56-34250,A using a DSI channel, and the technique which raised circuit efficiency is proposed. Moreover, in JP,2-181552,A, it judges that a sound signal is [an owner sound] silent, and the technique which made it possible to carry out silent oppression, to raise transmission efficiency and to decode correctly by one side by packet-izing a sound signal in the case of an owner sound, and transmitting it to it is proposed.
[0003]
[Problem(s) to be Solved by the Invention] Each such a conventional method aims at improvement in the circuit efficiency in transmission of two or more sound signals. For this reason, when there are few amounts of transmissions of a sound signal (for example, when so few that one circuit is also enough as the amount of transmissions of a sound signal), the effectiveness of improving circuit efficiency is not acquired.
[0004] On the other hand, by the former, although the demand which transmits voice and data by the same circuit is raised with the spread of the telephone in recent years, FAX, etc., since data transmission by FAX cannot be performed at the time of transmission of the sound signal by the telephone and transmission of the voice by the telephone cannot be conversely performed at the time of transmission of the data based on FAX, improvement in the circuit efficiency in such a circuit is desired.
[0005]
[Objects of the Invention] The purpose of this invention enables transmission of voice and data to coincidence in the same circuit, and is to offer the voice data transmission equipment which enabled coincidence use with a telephone, FAX, etc. which were described above, and aimed at improvement in circuit efficiency.
[0006]
[Means for Solving the Problem] The voice data transmission equipment of this invention is connected through a transmission line. The output circuit which can send out a sound signal and a data signal, An output side voice detection means to have the input circuit which can receive the transmitted sound signal and a data signal, and to detect a sound signal in an output circuit, An input sidetone voice detection means to detect the sound signal which was equipped with the output side data output switch made to stop sending out of a data signal when this output side voice detection means detected a sound

signal, and has been transmitted to the input circuit, When this input sidetone voice detection means detects a sound signal, it has the input-side data output switch made to stop reception of a data signal.
[0007] As a concrete configuration of this invention, an output circuit The delay circuit which delays the sound signal inputted into the voice input edge, and the packetized voice data-ized circuit which packetized-voice-data--ization-processes the delayed sound signal, and is sent out to a transmission line, The voice detector which detects said inputted sound signal, and the memory which once memorizes the data signal inputted into the data input edge, It has the data output switch which is beginning to read the data signal memorized by this memory one by one, and is sent out to a transmission line, and when said voice detector detects a sound signal, said data output switch is constituted so that that actuation may be suspended. Moreover, an input circuit is equipped with the delay circuit which delays both the sound signal transmitted from the transmission line, and a data signal, the packetized voice decryption circuit which decrypts the delayed packetized voice of a sound signal and is outputted to a voice output edge, the packetized voice data detector which detects a packetized voice, and the data-output switch which outputs a data signal to a data-output edge, and when said packetized voice data detector detects a packetized voice, said data-output switch is constituted so that the actuation may be suspended.
[0008] Here, a data input edge, memory, and two or more sets of data output switches are formed, and you may constitute so that each data output switch may operate sequential. Moreover, you may be the sound signal with which the sound signal inputted into a voice input edge was multiplexed.
[0009]
[Function] When a sound signal is inputted, a sound signal detection means stops sending out of a data signal by making an output side data output switch into an OFF state. When a sound signal is not inputted, a sound signal detection means sends out a data signal by making an output side data output switch into an ON state. Therefore, while a sound signal does not exist is used effectively by transmitting an simultaneous sound signal only at the time of an owner sound, and transmitting a data signal at the time of silent, transmission of a data signal is enabled, and it becomes possible to raise transmission-line effectiveness.
[0010]
[Example] Next, the example of this invention is explained with reference to a drawing. Drawing 1 is the block diagram of one example of the voice data transmission equipment of this invention, and consists of an output circuit 1 which outputs voice data to a transmission line, and an input circuit 2 which inputs the transmitted voice data. From the voice input edge 11, the sound signal from telephone is inputted as a digitized voice signal, and, as for an output circuit 1, the digital data signal from FAX is inputted from the data input edge 12. It is constituted so that the delay circuit 13 which delays the inputted sound signal, and the packetized voice data circuit 14 which forms this delayed sound signal into packet data may be connected to said voice input edge 11 and the sound signal formed into packet data may be outputted to a transmission line 3.
[0011] Moreover, the memory 15 which memorizes the data signal inputted temporarily, and the data output switch 16 which suspends the output of a data signal in case the data signal memorized by memory 15 is read one by one and it outputs to a transmission line 3 are formed in said data input edge 12. Furthermore, the existence of an input of the sound signal inputted into said voice input edge 12 is detected, and the voice detector 17 which synchronizes and drives said packetized voice data-ized circuit 14 and data output switch 16 is formed.
[0012] On the other hand, the input circuit 2 incorporated the audio packet from each signal of the delay circuit 21 for each signal of voice or data inputted from a transmission line 3 being delayed, and the voice and data which were delayed, performed the decryption, and is equipped with the packetized voice decryption circuit 22 which outputs voice to the voice output edge 23 connected to telephone etc. Moreover, a data signal is incorporated from each signal of the voice and data which were delayed, and in case a data signal is outputted to the data output edge 24 connected to FAX etc., it has the data output switch 25 which suspends the output. Furthermore, the existence of packetized voice data is detected from each signal of the voice and data which are inputted from said transmission line 3, and the packetized voice data detector 26 which synchronizes and drives said packetized voice decryption

circuit 22 and data output switch 25 is formed.

[0013] The transmission actuation of voice and data in the above configuration is explained to drawing 2 with reference to the flow chart which shows a part of the process. For example, suppose that data transmission by FAX is performed now. In this case, in an output circuit 1, the data signal from FAX is inputted into the data input edge 12, and the end storage of this data signal is carried out at memory 15. And at this time, since the voice detector 17 has detected that the sound signal is not inputted into the voice input edge 11, it sets the data output switch 16 as an ON state. Thereby, a data signal is read one by one from memory 15 by actuation of the data output switch 16, and it is sent out to a transmission line 3 as a data packet signal.

[0014] The transmitted data packet signal reaches even the post-data output switch 25 by which only the specified quantity was delayed in the input circuit 2 in the delay circuit 21. Since voice is not transmitted from a transmission line 3 at this time, the data output switch 25 is set as an ON state, a data signal is outputted by actuation of the data output switch 25 from the data output edge 24 by this, and the packetized voice data detector 26 is inputted into FAX.

[0015] Here, if telephone will be in a talk state, since a sound signal is inputted into the voice input edge 11, the voice detector 17 will detect this and will set the data output switch 16 as an OFF state in an output circuit 1. This stops sending out of the data signal from memory 15. And while making the data output switch 16 off, after the sound signal inputted into the voice input edge 11 is delayed in a delay circuit 13, it is packet-ized in the packetized voice data-ized circuit 14, and is sent out to a transmission line 3 as a packetized voice signal.

[0016] After only the specified quantity is delayed in an input circuit 2 in a delay circuit 21, the transmitted packetized voice signal is decrypted in the packetized voice decryption circuit 22, and is sent out to telephone from the voice output edge 23. In order that the packetized voice data detector 26 may detect a packetized voice signal at this time, the data output switch 25 is made into an OFF state, and it suspends outputting a data signal from the data output edge 24.

[0017] And in an output circuit 1, when the sound signal inputted into the voice input edge 11 once breaks off, the voice detector 17 makes the data output switch 16 an ON state in an instant, reads the data signal memorized by the memory 15 by which sending out of a data signal was stopped in the meantime one by one, and sends it out to a transmission line 3 as a data packet signal. Therefore, even if transmission of a data signal stops by the input of a sound signal, since the data signal in the meantime is memorized by memory 15, data are not missing.

[0018] In addition, the delay circuit 13 of an output circuit 1 is for securing the time amount needed for forming a sound signal into packetized voice data, after the voice detector 17 detects voice. Moreover, the delay circuit of an input circuit 2 is for preventing that the output is missing by securing the time amount needed for decrypting packetized voice data, after the packetized voice data detector 26 detects packetized voice data, and turning off the data output switch 25 for the data packet between parentheses.

[0019] The above is an example at the time of performing voice transmission by telephone, when performing data transmission by FAX previously, but same actuation is performed, even when voice transmission by telephone is being performed conversely and it performs data transmission by FAX. That is, in an output circuit 1, the voice detector 17 detects the sound signal always inputted into a voice input edge, and when conversation breaks off also in the midst of a conversation according the data output switch 16 to telephone ON and since off control is carried out, let the data output switch 16 be an ON state. Since the data signal with which the midst of this conversation was also inputted into the data input edge 12 is memorized by memory 15 one by one, when conversation breaks off and the data output switch 16 is made into an ON state, a data signal is immediately read from memory 15, and transmission is performed as a data packet signal.

[0020] Thus, in this example, transmission of the voice by telephone and transmission of the data based on FAX are performed by one circuit, and priority is given to transmission of the voice as which synchronia is moreover required, and even if there is delay, satisfactory data are transmitted between voice transmissions. Thereby, in the former, data transmission becomes possible using the circuit

occupied at the time of audio transmission, and it becomes possible to raise the use effectiveness of a circuit.

[0021] In addition, in the case of the terminal of a computer or others, although the case of transmission of the data based on FAX was explained to be the voice by telephone in said example, as a data terminal, it is applicable similarly. Moreover, as the example of an output circuit is shown in drawing 3 , it 12B Prepares and Memory 15A and 15B and the data output switches 16A and 16B are connected to each data input edge, and it is also possible, if the voice detector 17 constitutes these data output switches so that it may turn on sequential and OFF actuation may be carried out two data input edge 12A and to carry out [two or more] sequential transmission of two or more data here. Furthermore, it cannot be overemphasized that this invention can be applied also when it is the voice to which Time Division Multiplexing was carried out [voice / which is inputted into a voice input edge].

[0022]
[Effect of the Invention] As explained above, a sound signal detection means makes an output side data output switch an ON state, and this invention sends out a data signal, when a sound signal detection means makes an output side data output switch an OFF state, sending out of a data signal is stopped, when a sound signal is inputted into an output circuit, and a sound signal is not inputted. Therefore, while a sound signal does not exist is used effectively by transmitting an simultaneous sound signal only at the time of an owner sound, and transmitting a data signal at the time of silent, transmission of a data signal is enabled, and it becomes possible to raise transmission-line effectiveness.

[0023] Moreover, lack of the sound signal at the time of packetized-voice-data--ization-processing a sound signal and sending out to a transmission line is prevented by establishing the delay circuit which delays a sound signal in an output circuit. Moreover, lack of the data at the time of a data output switch being turned off is prevented by having the memory which memorizes a data signal. Moreover, lack of the sound signal at the time of carrying out the packetized voice decryption of the sound signal and lack of the data signal at the time of a data output switch stopping the output of a data signal can be prevented by establishing the delay circuit which delays a sound signal and a data signal in both input circuits.

[Translation done.]